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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HARVEY, DIONNE

ART UNIT PAPER NUMBER

2643

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/031,337

Applicant(s)

NIELSON

Examiner

Dionne N Harvey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date .
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodings (U.S. 5,259,033) in view of Soli (U.S. 5,402,496).

Regarding claims 1 and 6, Goodings teaches the apparatus of claim 6, as well as a method for canceling feedback in an acoustic system comprising: a microphone (5); a

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signal path (shown); a speaker (11); means for detecting presence of feedback (31) between the speaker and microphone; an amplifier (7,9); memory means (inherently taught in Goodings' disclosure of elements 31 and 27); and filter means (27) for compensating at least partly a possible feedback signal, the method comprising : providing a LMS algorithm (by correlator-31; see column 9, lines 12-24) for generating filter coefficients; where the transfer function operates a level dependent adaptation speed when feedback is present, this representing a second mode (see column 7, lines 16-22); where the means for detecting the presence of feedback (31; also see column 7, lines 32-40) is used to control the adaptation mode selection i.e., the speed of adaptation; and where the feedback detection means (31) comprises bandwidth detection means for determining the presence of a feed back signal (see column 8, lines 22-28, wherein Goodings teaches that feedback cancellation should happen over range of 300Hz to 7 kHz).

Goodings does not clearly teach a first mode, where the LMS algorithm operates with a predetermined essentially level independent adaptation speed when feedback is not present. In column 10, lines 3-27, Soli teaches that in the absence of a feedback signal, broadband noise is provided to the system to ensure continuous adaptation of the adapting filter. Soli teaches the provision of a uniform noise signal such that when no "real" feedback is present, the LMS algorithm will operate at an independent adaptation speed so as to prevent the weighting coefficients within the adaptive filter from "floating". Therefore, It would be obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Goodings and Soli, providing a "first

mode" in which the "feedback free" acoustic signal is adapted at a level independent adaptation speed, for the purpose of preventing weighting coefficients within the adaptive filter from "floating" in the absence of "other" signal input, as discussed by Soli in column 10, lines 3-27.

Regarding claims 2 and 6, Gooding teaches determining the update rate of said LMS algorithm by the long-term average denominator, as is well known in the art.

Regarding claim 3, Gooding teaches a highpass filter (87) to prevent low-frequency signals from entering the LMS algorithm, where an additional feedback cancellation filter (79) and a noise generator (33) is used for providing low-frequency input for the LMS algorithm.

Regarding claim 4, Gooding teaches that the stability of the signal determined as a feedback signal is *analyzed*, as broadly claimed.

Regarding claim 5, As is well understood in the art, the correlator (31) and adaptive filter (27) will adjust weighting coefficients according to the LMS algorithm by comparison of successive time frames and their associated flag values.

Regarding claim 7, Soli teaches stability detecting means (in column 10, lines 3-27), as broadly claimed, for the feedback signal.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne N Harvey whose telephone number is 703-305-1111. The examiner can normally be reached on 9-6:30 M-F and alternating Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dionne Harvey


HUYEN LE
PRIMARY EXAMINER